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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/726,867	11/30/2000	Tadao Yoshida	450100-02887	1954
20999 7590 12/12/2007 FROMMER LAWRENCE & HAUG 745 FIFTH AVENUE- 10TH FL. NEW YORK, NY 10151			EXAMINER SHANG, ANNAN Q	
			ART UNIT 2623	PAPER NUMBER
			MAIL DATE 12/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/726,867

Applicant(s)

YOSHIDA ET AL.

Examiner

Annan Q. Shang

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/23/07 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

With respect to the 103(a) rejection of claims 1-18 in the last office action, applicant amends the claims, discusses the rejection and further argues that the prior arts of records do not teach the amended claim limitation (see page labeled 11 of 15 of Applicant's Remarks/Arguments).

In response, Examiner disagrees. Examiner notes applicant's arguments, however, the primary prior art of records, Ismail teaches all the claim limitations including using functional equations to compute and analyze the attribute information for each of a plurality of user selected contents and modifies the computations that comprises user preference items by computing a new weight for each element of the computation of each element of the attribute of the plurality of user selected contents

(col.4, lines 13-34, col.5, line 19-col.6, line 1+, lines 35-67 and col.8, lines 21-52). Ismail is silent to the claimed "...modifies the n-dimensional vector S..." However, the deficiency in Ismail is disclosed in Sumita as discussed in the office action below. The amended claims do not overcome the prior arts of record. The amendment to the claims necessitated the new ground(s) of rejection discussed below. **This office action is non-final.**

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ismail et al (6,614,987)** in view of **Sumita et al (6,581,207)** and further in view **Maissel et al (WO-99/01984)**.

Regarding claims 1 and 10, Ismail discloses a broadcast system and associated reception apparatus [100, fig. 1; see col. 4, lines 40-44] comprising:

A broadcast station (see digital satellite system and CATV system, column 4, lines 49-54) for broadcasting digital content (see digital encoding, column 4, lines 40-47) with attribute information (attribute information 107), indicating an attribute thereof (i.e., attributive information is related to said digital contents, column 3, lines 43-48); and a plurality of reception apparatuses [100, fig. 1] (where a broadcast system includes a

distribution system coupled to at least two reception/receiving apparatuses) having reception means (column 4, lines 40-41) for digital contents (see digital encoding, column 4, lines 40-47) and said attribute information (attribute information 107, column 3, lines 33-61), broadcast by the broadcast station (see digital satellite system and CATV system, column 4, lines 49-54),

A recording medium (storage device 106) for the recording received digital contents and the received attribute information (see storage of program data 105 and attribute information 107 in storage device 106, fig. 1, and column 4, lines 7-8), output means (monitor 108) for outputting the received digital contents (column 4, lines 35-38), and

Selection means (preference agent 110 and recording manager 112, fig. 1) for allowing a user to select the digital contents via a filtering process (specification of programs to record by specification of particular attributes of the program by the user, col. 3, lines 25-30) by comparing selection information indicating user's preferences (preference database 116, fig. 1) with the attribute information (107) assigned to digital contents (column 4, lines 13-31); the plurality of reception apparatuses store the digital contents that match said user preferences even if said user does not reserve said digital contents (col. 2, lines 1-8).

Although Ismail discloses receiving digital contents (col. 4, lines 35-38), attribute information, (107) and selection information (116), and further discloses a means of selecting content (col.8, lines 22-40) and receiving viewing habits, including using functional equations to compute and analyze the attribute information for each of a

plurality of user selected contents and modifies the computations that comprises user preference items by computing a new weight for each element of the computation of each element of the attribute of the plurality of user selected contents (col.4, lines 13-34, col.5, line 19-col.6, line 1+, lines 35-67 and col.8, lines 21-52).

Ismail fails to specifically disclose: user activation/deactivation of the filtering process at any time; modifying EPG program titles in accordance with user selection; attribute information expressed as an n-dimensional vector A comprising attribute items as elements indicative of attribute intensities for content; said selection information expressed as an n-dimensional vector S comprising user preference items; item types and orders for said attribute and said selection information correspond to those for attribute vector A and selection vector S; and said reception apparatus's selection means performs an inner product operation between attribute vector A attached to a broadcast content, and selection vector S and determines whether to select that digital content based on an inner product result, where the controlling unit analyzes the attribute information vector for each of a plurality of user selected contents and then modifies the n-dimensional vector S that comprises user preference items by computing a new weight for each element of the n-dimensional vectors S as function of each the elements of each of the attribute information vectors of each of the plurality of user selected contents, as recited in the claims.

In an analogous art, however, **Sumita** discloses a system in which attribute information expressed as an n-dimensional vector (vector K, col. 7, line 67 - col. 8, line 1; where "n" is unspecified, "n-dimensional vector" is met by any vector) containing

attribute items (keywords) as elements each indicative of attribute intensities (frequency of use) for content (where the keywords are selected so as to be descriptive of programming content, col. 6, lines 57-64 and col. 7, lines 15-23); said selection information expressed as an n- dimensional vector (vector P_i , col. 7, lines 65-66) comprising user's taste items (i.e., user profile information, column 7, lines 54-58) as elements indicative of taste intensities (weighted according to frequency of use, col. 7, lines 65-66); item types and orders for said attribute and said selection information correspond to those for the attribute vector (vector K) and the selection vector (vector P_i); and said reception apparatus's selection means performs an inner product operation between attribute vector attached to a broadcast content, and selection vector (fig. 1, col. 7, line 63 and col.8, lines 1-3), and determines whether to select that content based on an inner product result (see fig. 12, and column 7, lines 50-59), for the purpose of computing the similarity between incoming content attribute information and user's profile information (column 7, lines 50-59).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the system of Ismail to include the attribute information, selection information, item types and orders, performing an inner product, and determining whether to select content based on said inner product result as taught by Sumita, for the computing the similarity between incoming content attribute information and user's profile information in a broadcast recording system.

The combined teachings of Ismail and Sumita fail to disclose user activation/deactivation of the filtering process and differentiating the titles of programs

matching said users selection data when displaying the EPG, as claimed; and wherein said controlling unit computes a new weight and analyzes the attribute information for each elements of the attributes information of the plurality of the user selected contents.

Also in an analogous art, however, Maissel discloses a filtering process for allowing a user to select program contents that is automatically activated by a controller (intelligent agent 130) [see p. 18, ¶¶2-3] and permits user activation or deactivation at any time (i.e., turn on/off collection of preference information and/or delivery alerts [see p. 19, ¶¶2-3]). Maissel further discloses that while displaying the EPG, said reception unit modifies EPG program titles in accordance with the user's selection such that when a program matches the selection information (viewer profile) and the attribute information (program schedule information), the controlling unit displays the title information indicating the program title in a different state from other program titles [see fig. 7 and pp. 20-21 and 27-28]. Additionally, the controlling unit computes said attribute information of the digital contents replayed by the user (i.e., programs viewed more than once), analyzes the user's taste and based on the analysis, modifies a weight of each parameter of said selection information to optimize the selection information for said user (page 19 para. 1, page 20 para. 3, page 29 para. 3). Further, Maissel discloses that the disclosed filtering system enables presentation of an electronic program guide that is customized according to the preferences of one or more viewers [see p. 20, ¶3].

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the reception apparatus of Ismail and Sumita such that the filtering process is activated or deactivated at any time by the user and,

when displaying the EPG, the titles of programs whose descriptive attributes match the preferences or selections of the user are displayed differently from other program titles as taught by Maissel, for the benefit of providing the user with a programming guide that is tailored to his or her preferences.

As to claims 3 and 12, the combined teachings of Ismail, Sumita, and Maissel disclose where said selection information's vector (Sumita, vector Pi) is found from a vector of attribute information (Sumita, vector K) attached to a plurality of digital contents (Ismail, see digital encoding, column 4, lines 40-47) selected by the user (Sumita, column 4, lines 62-67).

5. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ismail, Sumita, and Maissel** as applied to claims 1 and 10 above, further in view of Dunlop (of record) and further in view **Aggarwal (of record)**.

Regarding claims 2 and 11, the combined teachings of Ismail, Sumita, and Maissel disclose a broadcast system and corresponding reception apparatus (Ismail, i.e., a system for receiving broadcasts, recording system 100, fig. 1, and column 4, lines 40-44) wherein the selection means of each of said plurality of reception apparatuses selection means find a selection value (Ismail, preference agent 110 and recording manager 112, fig. 1) based on the following equation and selects the digital content based on a size of the selection value (Sumita, column 7, lines 50-58):

$$P = (A'S) / \sum A [S] \text{ (see equation (1), Sumita, col.7, line 63).}$$

Ismail, Cragun and Sumita fail to explicitly state the assumptions:

$$A \cdot S = \sum_{k=1}^n a_k S_k \quad (1)$$

$$k=1 \text{ to } n$$

$$|A| = \sqrt{\sum_{k=1}^n a_k^2} \quad (2)$$

$$k=1 \text{ to } n$$

$$|S| = \sqrt{\sum_{k=1}^n S_k^2} \quad (3)$$

$$k=1 \text{ to } n \text{ in which neither } A \text{ nor } S \text{ is a zero vector.} \quad (4)$$

In an analogous art, however, Dunlop discloses assumptions (1), (2), and (3) (pp. 139- 140), for the purpose of defining equations representing the scalar (dot) product of two or more vectors and the magnitude (size) of a vector.

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined teachings of Ismail, Sumita, and Maissel to include assumptions (1), (2), and (3), shown above, as taught by Dunlop, for the purpose of defining equations representing the scalar product of two or more vectors and the magnitude of a vector for performing calculations in a broadcast recording system.

In addition, in an analogous art, Aggarwal discloses assumption (4) (col. 4, lines 47- 52, i.e., that vectors in a vector product operation are non-zero), for the purpose of obtaining a meaningful, non-zero result.

Therefore, it would also have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combined teachings of Ismail, Sumita, Maissel, and Dunlop to include assumption (4), shown above, as taught by Aggarwal,

for the purpose of obtaining a meaningful, non-zero result when performing calculations in a broadcast recording system.

6. Claims 4-6 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ismail, Sumita, and Maissel** as applied to claims 3 and 12 above, and further in view of **Hawkins (of record)**.

Regarding claims 4 and 13, the combined teachings of Ismail, Sumita, and Maissel disclose a broadcasting system comprising a selection information vector (Sumita, vector Pi, column 7, lines 65-66) and digital contents (Ismail, see digital encoding, column 4, lines 40- 47) selected by the user (Sumita, column 4, lines 62-67), however, they fail to specifically disclose wherein said selection vector is found according to the following equation:

$$S = 1/M \sum A_k$$

$$k=1 \text{ to } M$$

where M is assumed to be a number of contents selected by the user and an attribute vector for the Kth content selected by the user is assumed to be: $A_k = (a_{1k}, a_{2k}, a_{3k}, \dots, a_{nk})$, as recited in the claims.

In an analogous art, however, Hawkins discloses a selection information vector (vector map representing user selected preferences) is found by averaging vectors A for attribute information (corresponds to the equation recited in the claim, where summing a set 1 to M of vectors and dividing the vector sum by M will produce a vector representing an average of the vectors in the set 1 to M)(col. 11, lines 5-15), for the

purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user (col. 11, lines 15-18).

Therefore, it would have been obvious to one of ordinary skill in the art to modify the system of Ismail, Sumita, and Maissel to include the formula as recited in the claim which, generates an average of vectors A_k , as taught by Hawkins, for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user in a broadcast recording system.

Regarding claims 5 and 14, the combined teachings of Ismail, Sumita, and Maissel disclose a broadcasting system comprising a selection information vector (Sumita, vector P_i , column 7, lines 65-66) attached to a plurality of contents reproduced by a user for a specified time (Sumita, col. 4, lines 62-67) and digital contents (Ismail, see digital encoding, col. 4, lines 40-47), and the vector $A_k = (a_{1k}, a_{2k}, a_{3k}, \dots, a_{nk})$.

However they fail to specifically disclose wherein said selection information vector is found according to the equation:

$$S = 1/M \sum_{k=L-M+1}^L A_k$$

where M is assumed to be a number of windows for finding a vector S , L is assumed to be a start point for selecting the plurality of digital contents for finding the vector S .

The formula recited in the claim generates an average of M vectors A_k taken from a set of vectors A_k of size L , corresponding to the teaching of Hawkins who discloses a selection information vector (vector map representing user selected preferences) is found by averaging vectors A for attribute information over a specified period of time (an operation which requires taking some number of previous selection

preferences vectors from a set encompassing the entirety of user selection preferences vectors, and generating an average selection vector based on the selected subset of user preference selections vectors) (col. 11, lines 5-15), for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user (col. 11, lines 15-18).

Thus, it would have been obvious to one of ordinary skill in the art to modify the system of Ismail, Sumita, and Maissel to include the formula as recited in the claim which, generates an average of M vectors A_k taken from a set of vectors A_k of size L , as taught by Hawkins, for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user in a broadcast recording system.

As to claims 6 and 15, the combined teachings of Ismail, Sumita, and Maissel disclose a broadcasting system comprising a selection information vector (Sumita, vector P_i , column 7, lines 65-66) attached to a plurality of contents reproduced by the user for a specified time (Sumita, column 4, lines 62-67) and digital contents (Ismail, see digital encoding, column 4, lines 40-47), however, they fail to specifically disclose wherein said selection information vector is found by averaging vectors A for attribute information over a specified period of time, as recited in the claims.

Hawkins discloses a selection information vector (vector map representing user selected preferences) is found by averaging vectors A for attribute information over a specified period of time (col. 11, lines 5-15), for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user (col.

11, lines 15-18).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ismail, Sumita, and Maissel to include said selection information vector is found by averaging vectors A for attribute information over a specified period of time, as taught by Hawkins, for the purpose of enabling the terminal to automatically perform a search for similar items and recommend them to the user.

7. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ismail, Sumita, and Maissel as applied to claims 3 and 12 above, further in view of Eldering (of record), and further in view of Inoue (of record).

Regarding claims 7 and 16, the combined teachings of Ismail, Sumita, and Maissel disclose a broadcasting system comprising a selection information vector (Sumita, vector Pi, column 7, lines 65-66) and attribute information attached to the plurality of digital contents (Ismail, see digital encoding, column 4, lines 40-47 and column 3, lines 43-48), however they fail to specifically disclose wherein said selection information vector is found by averaging vectors A for attribute information and wherein attribute information is attached to a plurality of contents reserved by the user, as recited in the claims.

In an analogous art, however, Eldering discloses a system wherein said selection information vector is found by averaging vectors for attribute information (column 4, lines 42-51), for the purpose of describing demographic information for a

household, rather than a single subscriber (column 4, lines 42-51).

Accordingly, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined system of Ismail, Sumita, and Maissel to include said selection information vector is found by averaging vectors for attribute information, as taught by Eldering, for the purpose of for the purpose of being able to convey demographic information for an entire household, rather than a single subscriber in a user profile feedback system.

Ismail, Sumita, Maissel, and Eldering are silent with respect attribute information is attached to a plurality of contents reserved by a user, as recited in the claims. Inoue, however, discloses a system wherein attribute information (service additional information) is attached to a plurality of contents reserved by a user (column 17, lines 37-47), for the purpose of using the information to judge whether or not to reserve the program.

Thus it also would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined system of Ismail, Sumita, Maissel, and Eldering to include attribute information attached to a plurality of contents reserved by the user, as taught by Inoue, for the purpose of using the attribute information to judge whether or not to reserve the program based on user preferences in a content receiving system.

8. Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ismail, Sumita, and Maissel** as applied to claims 3 and 12 above,

further in view of **Russel- Falla (of record)** and still further in view of **Inoue**.

Regarding claims 8 and 17, the combined teachings of Ismail, Sumita, and Maissel disclose a broadcasting system comprising a selection information vector (Sumita, vector Pi, column 7, lines 65-66) attached to the plurality of contents reproduced by the user for a specified time (Sumita, column 4, lines 62-67) and digital contents (Ismail, see digital encoding, column 4, lines 40-47), however they fail to specifically disclose averaging vectors for attribute information for contents reserved by a user, assigning a weight to each average, and combining these weights.

In an analogous art, however, Russell-Falla discloses a system wherein a selection vector is found according to:

$$\text{rating} = (n \sum_{1 \text{ to } p} X_p W_p) / c$$

where c is the number of contents selected by a user; and $X_p w_p$ is an attribute vector, n is a weight assigned to the average (scale factor, col. 5, lines 28-29), and combining these weights (summing the weighted or scaled averages), for the purpose of rating content relative to a selected characteristic in a broadcast recording system.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Ismail, Sumita, and Maissel to solve for the selection vector according to the disclosure of Russell-Falla, for the purpose of rating content relative to a selected characteristic in a broadcast recording system.

The combined teachings of Ismail, Sumita, Maissel, and Russel-Falla fail to teach attaching attribute information to the contents reserved by the user. But Inoue

discloses a system wherein attribute information (service additional information) is attached to a plurality of contents reserved by a user (column 17, lines 37-47), for the purpose of using the information to judge whether or not to reserve the program.

Therefore it would also have been obvious to one of ordinary skill in the art at the time of invention to modify the combined system of Ismail, Sumita, Maissel, and Russell- Falla to include attribute information attached to a plurality of contents reserved by the user, as taught by Inoue, for the purpose of using the attribute information to judge whether or not to reserve the program based on user preferences in a content receiving system.

9. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ismail, Sumita, and Maissel** as applied to claims 1 and 10 above, and further in view of **Eldering**.

Regarding claims 9 and 18, the combined teachings of Ismail, Sumita, and Maissel disclose a broadcasting system wherein the selection means of each of said plurality of reception apparatuses (Ismail, column 4, lines 40-41) selects the digital content (Ismail, see digital encoding, column 4, lines 40-47) based on a vector of the selection information (Sumita, user profile information, column 7, lines 54-58 and vector Pi, column 7, lines 65- 66). But they fail to specifically disclose said selection information corresponding to a plurality of users, as recited in the claims.

Eldering discloses selection information corresponding to a plurality of users (column 4, lines 42-51), for the purpose of indicating which content a household will be

interested in (column 2, lines 23-32).

Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combined system of Ismail, Sumita, and Maissel to include said selection information corresponding to a plurality of users, as taught by Eldering, for the purpose of indicating the type of content a household as a whole will be interested in, in a user profile feedback system.

Conclusion

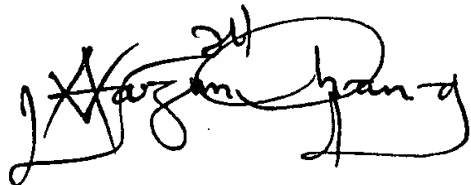
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Alexander et al (6,177,931) disclose systems and methods for displaying and recording control interface with TV programs, video, ads and program information schedule.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Annan Q. Shang** whose telephone number is **571-272-7355**. The examiner can normally be reached on **700am-400pm**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Christopher S. Kelley** can be reached on **571-272-7331**. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the **Electronic Business Center (EBC) at 866-217-9197 (toll-free)**. If you would like assistance from a **USPTO Customer Service Representative** or access to the automated information system, call **800-786-9199 (IN USA OR CANADA)** or **571-272-1000**.

A handwritten signature in black ink, appearing to read 'Annan Q. Shang', with a stylized flourish at the end.

Annan Q. Shang